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ABSTRACT

The materials and activities included in this learning package assist the trainees to understand the general philosophy and concepts of process education and to develop competency in the methods to translate these concepts into operational classroom practice. Participants are first presented with information and/or observations; they are then asked to think about the observation or information. After they have been presented with a problem or task that requires them to apply and extend the information they acquired in earlier stages, they are provided with feedback on some other ways in which they might have solved the problem or completed the task. The package has been designed to be used in an intensive 3-hour session or over a longer period of time. The appendix includes a list of alternative materials for use with the package and an annotated bibliography of suggested reading. (Author/DN)

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MAKING PROCESS EDUCATION OPERATIONAL

THROUGH

OBJECTIVE DESCRIPTIONS OF CLASSROOM ROLES

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This set of training materials was prepared especially for use at the Second Annual National Educational Technology Conference in New York on March 21, 1972, for use in the author's educational psychology classes at the University of Kentucky, and for use at the 17th Annual Creative Problem Solving Institute in Buffalo, New York in June 1972. Permission to duplicate portions of these training materials for use in conducting workshops may be obtained by writing to the author.

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INSTRUCTIONAL PURPOSE AND DESIGN

This portion of the training package is intended for the workshop leader. It should not be given to participants until after the training session is concluded.

Rationale and Characteristics

The materials and activities included in this training package are designed to assist the trainees in understanding the general philosophy and concepts of process education as well as developing competency in methods by which to translate these ideas into operational classroom practices. The particular target audience for which this package was designed and the specific performance objectives to be achieved by trainees are stated on Handout I.

This package may also be used as an example of the application of principles and techniques of instructional design to the development of learning activities and materials. In a broad sense the package is a large step, guided discovery, linear, learning program. Unlike conventional learning programs it features collaborative interaction of groups of individuals for most problem tasks. It also requires productive-divergent thinking, analytic reasoning and problem solving for most tasks. The program proceeds in a cyclic linear sequence. First participants are presented with information and/or observations. Second, they are asked to think about the observation or information. Third, they are presented with a problem or task which requires them to apply and extend the information they acquired in earlier stages. Fourth, they are provided with feedback on some other ways they might have solved the problem or completed the task. The feedback information is not intended to be "the correct response" which participants are to arrive at in the typical Skinnerian sense. Rather the feedback information is presented as one set of solutions among many possible. Consequently the learning activities are designed to enhance divergent-productive and creative thinking rather than convergent thinking toward established "correct" responses.

Timing

As presently designed the training package can be used in an intensive 3 hour session. However, it can also be used over a longer period of time with spaced practice. Additional study and activities can easily be incorporated.

To aid the workshop leader the time period for each activity is provided in the table of instructional procedure provided below. As participants approach each activity the workshop leader should always specify the time to be allocated to the task. Prior to commencing the workshop activity the leader should communicate to the participants that the session will be fast moving, varied, with short time periods being allocated to various tasks, discussions and activities. Participants will be able to do detailed follow up study later with the aid of the handouts.

Handouts

The handouts are numbered and arranged in a structured sequence. Distribute each set of handouts at the appropriate time, according to the table of instructional procedure. Do not distribute all handouts at the beginning of the session. The information contained in the handouts is carefully programmed. Generally the information in a later handout is withheld until the problem solving and divergent thinking related to the previous activity has been completed.

Alternate Materials

If you do not have access to certain films or color slides used in this training package you may refer to the appendix where other suitable materials are suggested. The table of instructional procedure informs you where in the sequence of activities these readily available materials can be substituted. The appendix also contains a short annotated bibliography which may be useful to participants or workshop leaders in subsequent activities.

Instructional Procedure

The procedure for managing the workshop learning activities are fully outlined in the table of instructional procedure found below. To prepare for the workshop, read through the table and engage in each activity called for in the participant handouts.

TABLE OF INSTRUCTIONAL PROCEDURE

Handout	Purpose	Procedure	Minutes
1	States the audience for which the workshop is intended and lists the performance objectives	Distribute H1. Ask people to read the handout individually and answer any questions which may arise.	2
2	To promote thinking about the tentative nature of knowledge	Distribute H2. Ask each person to mark continium 1 on the Handout. Ask them to watch the film. Show the film "Windows". (If you do not have the film "Windows" see the appendix for an alternate procedure.) After the film ask each person to individually mark continua 2 and 3 on the handout. Divide the group into several small groups of from 3 to 6 people in preparation for the next activity.	11

Handout	Purpose	Procedure	Minutes
3	To promote further thought and interaction about the tentative nature of knowledge.	Distribute H3. Ask the members of each group to read the statement and engage in the "Show and Tell" and "Questions" activity.	5
		Call for brief comments or insights from individual small groups addressed to the entire group. Summarize the ideas presented.	2
4	Provides information about the assumptions, justifications, and definitions for process education needed to derive and comprehend the basic value positions.	Distribute H4. This Handout contains 3 sources of information and the third activity. As soon as you have distributed the materials explain the task involved in Activity III. Quickly "walk" the entire group through the 3 major information sections. Explain to them that very detailed study of all these materials is not necessary at this time. Rather they should examine the materials toward being able to generate the value positions supportive of and opposed to process education. Allow 3 minutes for the introduction of the materials and 10 minutes for the completion of the activity.	13
5	Statement of empirically derived value positions for process education which can be used to examine the statements derived by participants.	Distribute H5. Allow each group to compare the results of their activity with the handout.	3
		Call for a brief general statement about similarities, differences, and other observations from each small group directed to the entire group. Allow each group a 1 minute statement. Clarify and summarize group statements as needed.	6
6	Statement explaining how basic value positions give rise to normative role expectations. Practice in translating basic value positions into role descriptions.	Distribute H6. Briefly introduce the basic idea that the value positions supportive of or opposed to process education give rise to very different classroom role expectations for pupils and teachers. Call attention to and explain the task required in Activity IV. Instruct the small groups to proceed with the task after they have read the statement provided.	12

Handout	Purpose	Procedure	Minutes
7	Provides representative role descriptions of teachers and pupils which are both supportive of and opposed to the values of process education.	Distribute H7. Explain that these are not all the role descriptions which could be stated or not necessarily the most critical ones. Ask each group to compare and contrast their own role descriptions against the sample provided in this handout.	7
		Call for comments from each sub-group directed to the total group. Allow 1 minute per small group for statement.	6
8	Provides information and examples of how general role descriptions may be translated into behavioral indicies to assess classroom performance.	Distribute H8. Briefly state the purpose which appears at the left. Ask the individuals in each group to first read the statement and examples and then discuss them briefly. Call their attention to the task in Activity V, i.e. preparation of some behavioral indicies to use to observe classroom situations.	8
9	To provide further insight and practice into the selection of behavioral indicies appropriate to describing process education classroom learning-teaching roles.	Distribute H9. Explain that strictly verbal interaction analysis behavioral indicies such as those employed in the Flanders system are often inappropriate. Explain that slides of children working in process roles will be shown. There will be no sound. Participants are to watch and note any indicies which might be used to describe the observed behavior. Ask each person to read the statement on Handout 9. Allow 2 minutes for the introduction and 2 more for the trainees to read the introductory statement. Show the slides in approximately 12 minutes.	14
10	Provides representative behavioral observable role indicies for assessing the degree to which process education is being implemented.	Distribute H10. Explain that these are not necessarily all the indicies which could be developed. Ask each small group to examine the indicies provided against their own developed earlier; recommend additional indicators, and discuss the appropriateness of the classroom activity shown in the slides.	5
		Call for comments, suggestions, criticisms, and observations from each small group directed toward the total group. Allow one minute per small group. Summarize and clarify as needed.	6

Handout	Purpose	Procedure	Minutes
11	To provide experience in the application of derived pupil-teacher role indicies to the analysis of classroom behavior.	Distribute H11. Explain briefly the sequence of activities as outlined on the handout. Allow 5 minutes for the small groups to refine their indices.	6
—		Show the slides again. Allow about 7 - 9 minutes this time. Have each small group discuss their analysis (3 minutes).	12
		Call for comment from each small group directed toward the total group. Allow 1 minute per group. Summarize and clarify when necessary.	6
		Role play a poorly taught inquiry lesson. Select 10 - 15 trainees from across the small groups to role play students. The others will serve as observers. (See detailed instructions in the appendix.) Ask the observers to conduct a lesson analysis using their indicies.	5
		Following the teaching demonstration ask the trainees who role played students to return to their individual groups to critique the lesson with the observers to determine how it might be improved.	5
		Ask each small group to direct comments to the total group. Limit comments to one minute duration. Call for criticisms and suggestions for improving the lesson. Comment that this lesson is from an excellent process curriculum but was actually observed taught this way (See Appendix).	6
		Repeat the demonstration of the inquiry lesson in the proper manner and incorporating as many of the group suggestions as possible. This time use a second set of trainees to role play students, again drawing trainees from across all sub-groups while others remain as observers. (See the appendix for details of conducting the lesson).	10

Handout	Purpose	Procedure	Minutes
		Following the demonstration have trainees who role played students return to their individual groups to again critique the lesson with the observers.	5
		Ask each group to direct comments about the lesson to the total group. Allow 1 minute per group. Summarize and clarify as necessary.	6
12	Information about procedures for generalizing role descriptions and behavioral role indicies to the selection and improvement of instructional materials and procedures.	Distribute H12. Explain briefly how role descriptions and indicies can also be used as criteria or objectives for selecting and/or revising materials and procedures toward the ideals of process education. Ask the small groups to engage in Activity VIII.	10
13	Summarizing statement designed to help participants achieve a sense of closure while also raising a question about the congruency of their own beliefs and practices.	Distribute H13. Briefly summarize the information contained on the handout.	2
14	Feedback sheet to assess participant's perceptions of the utility and worth of the training activity.	Distribute H14. Ask each participant to fill out the form and return it before leaving. Call for open general discussion from the entire group.	2
		At this time announce that the instructional procedures and appendix portion of the package will allow participants to conduct the workshop with other groups. Do not hand out the instructional procedures and appendix prior to this time.	2

HANDOUT 1

INTRODUCTION

This workshop is designed for teachers, teacher leaders, curriculum coordinators, school administrators, college professors or educational consultants interested in learning more about process education and how it can be operationalized in classroom practice.

Performance Objectives

Following this workshop and with reference to these materials the workshop participant should be able to:

1. Recognize, recall and state:

   a) the major assumptions of process education
   b) the major logical justifications for process education
   c) the differences in basic value positions of conventional and process education with respect to the nature of knowledge, learning, the learner, and the purpose of schooling
   d) the relationship between the basic value positions of process education and operational classroom roles for teachers and pupils.

2. Generate and list objective descriptions of classroom roles for pupils and teachers congruent with the basic values for process education.

3. Translate objective descriptions of pupil and teacher classroom roles for process education into:

   a) behavioral indicators to assess the degree to which exhibited teacher and pupil classroom roles are congruent with the practice of process education
   b) criteria and objectives by which to

      1) modify and improve existing lesson plans, instructional procedures, classroom activities toward the practice of process education
      2) select and design new instructional arrangements and materials toward the practice of process education.

4. Apply derived indicators, criteria, and objectives to the analysis and/or design of teacher and pupil classroom learning roles and instructional materials toward operationalizing the values of process education.

HANDOUT 2

ACTIVITY 1

WINDOWS

You are about to view a short film. Before you view the film please make an X on the appropriate place on continium 1 below.

I think of windows as:

1) Absolute, True ——————————— Tentative, Arbitrary

After you have seen the film mark an X on continua 2 and 3 below. Save continium 4 for later.

I now think of windows as:

2) Absolute, True ——————————— Tentative, Arbitrary

Kowledge is:

3) Absolute, True ——————————— Tentative, Arbitrary

———————————

4) Absolute, True ——————————— Tentative Arbitrary

HANDOUT 3

ACTIVITY II (Group)

CHANGE

Windows are such common features in our daily lives that we are almost unaware of their existence. Yet, like any other aspect of our existence, they clearly reflect the great variety and rate of change in our culture.

Change is the most direct and pervasive aspect of our environment. Everything, everyone, is everywhere in the process of changing from something to something else. Growth and learning are change processes as are degeneration, death and decay.

"Windows" focuses on one common characteristic of our buildings and dwellings. Using windows as the theme the topic of change is examined across a wide array of time, social settings, neighborhoods, people, activities, institutions, structural materials, and customs.

Show and Tell:

Show your X's on continua 1 - 3 to the others in your group. Who agrees with you? Disagrees with you? Did your response change after viewing the film?

Questions:

What is absolute and true about windows? About their functions? About their form?

Evaluate the truth and finality of these statements.

"All windows are a link between the inside and outside."

"Functionally, all windows transmit light."

How do windows represent knowledge?

What are windows?

Make another X on continua 4 on Handout 3. This time let it represent how you act about the course content, or ideas you teach your students. How does this X compare with your other X's?

HANDOUT 4

ASSUMPTIONS, JUSTIFICATIONS, AND DEFINITIONS FOR PROCESS EDUCATION

The primary assumptions, justifications, and definitions for process education are summarized below. These have been abstracted from a more complete statement you may wish to refer to.[1]

Assumptions for Process Education

- Knowledge is an organized but tentative and arbitrary collection of changing and expanding information which each individual adapts and uses to make meaning from his unique experience.
- Learning (meaning making) is a natural and creative activity by which each person organizes and makes meaning (knowledge) from his experience toward fulfillment of his needs.
- Needs are the basis of the affective commitment which makes possible both the task of meaning making (learning, building knowledge) and the retention of the meaning made (knowledge).
- The process by which individuals make meaning (learn, build knowledge) from their experience is equally as important and more stable and lasting than either the experience or the meaning made (knowledge).
- Skills are the basis for the process of meaning making and all adaptive, productive, and satisfying behavior.
- Freedom to creatively apply skills to the process of organizing and making meaning (learning, building knowledge) from experience results in seeking, finding, and solving problems.
- Schools can provide the setting for individuals to develop and use those skills needed to freely build and make use of knowledge.

Justifications For Process Education

- Chronic change makes it impossible to predict what knowledge and information will be needed in only a few years.
- Knowledge is vast. The amount which can be learned is limited.
- Process Skills are more permanent than other types of learning.
- Information is stored and can be obtained when needed.Process skills cannot be "looked up".
- Emphasis on process skills prevents academic compartmentalization.
- Process skills are more widely applicable then knowledge.
- Process skills enable formal education to occur.

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[1] Cole, Henry P. Process Education: The New Direction For Elementary-Secondary Schools. Englewood Cliffs, New Jersey: Educational Technology Publications, 1972.

- Healty and productive societies are formed from individuals who cope effectiveiy using process skills.

- Process skills always have been and remain basic to coping with problems; thus their enhancement is essential to survival.

Glossary of Terms For Process Education

Logical Assumption	Definition	Examples
Needs are the basis for goal-directed behavior.	Need = A condition which motivates behavior toward some goal. This includes both basic physiologic needs and acquired needs (wants).	a. Need to explore, to structure experience. b. Need for parental approval. c. Need for acceptance by peers.
	Goal = A condition or end to be achieved toward the fulfillment of a need.	a. "Where does this trail go?" b. "Get a high grade on my social studies test." c. "What are the norms for acceptance by my peers?"
	Behavior = An action or a series of actions. The action has emotional, cognitive, psychomotor aspects and usually interpersonal consequences. The action can be observed directly only in part. It can be inferred from its results or the changes it brings about in the environment or the individual.	a. Walking along a trail, wondering and hypothesizing where it leads. b. Reciting the names of countries and their major cities, exports, and industry. Developing associations between these facts which will aid recall. c. Asking questions to find out how your friends feel about an issue.
What an individual does to meet needs is in essence process.	Process = A systematic series of actions directed toward some end, in this case, those collections or series of actions (behaviors) continually employed to direct behavior toward the fullment of needs.	Organizing behavior, perception, and feeling in an exploratory manner for purposes of seeking the goal, "Where does this trail lead?" Organizing behavior such that factual relationships may be learned and recalled for a test. Organizing behavior to be attentive to cues from others in order to determine how they feel.
The organization of behavior toward goals, occurs through the use of skills.	Skills = Strategies by which information is perceived, selected, and organized into actions directed toward goals.	Skills include such things as inferring, algebraic factoring hypothesizing, reading comprehension, running and walking, speaking, social perception of when to laugh and when to be serious, proving that 9x7=63 or 2+2=4 without resorting to the authority of tables, inductive and deductive reasoning, seriation, or ordering of any series on the basis of the relative magnitude of some property such as size, weight, color intensity, etc. Sometimes skills are organized into broader conceptual categories such as perceptual, cognitive psychomotor, affective, and social interactive.

Logical Assumptions	Definitions	Examples
Some skills are instrumental to the higher order skills of problem solving and learning.	Instrumental Skills = Basic patterns of behavior which comprise an individuals repertoire of behavior and are essential to more complex strategies or skills.	The alphabetic sequence of letters or numeric sequence of numbers; position learning including up-down, left-right, back-front, and compass coordinates. Common and acceptable ways of greeting and responding to others such as, "Hello, how are you?" and "Fine, thank you." The multiplication tables; the rules for conduct in a library; the sequence of musical notes in a tune; the sequence of steps in balancing a chemical equation.
Some skills are even more basic than instrumental skills.	Primary skills = Predispositions to ways of feeling, perceiving, and responding which cause perception to be selective and set limits upon behavior. The tendencies and capabilities are both acquired and innate.	An acquired primary skill is the visual discrimination of small changes in the shape, orientation, and size of printed symbols which makes reading possible. An innate primary skill is the physiological construction of the eye which makes such fine visual discrimination possible. Many of the primary skills which are acquired are attitudes which form the basis for likes and dislikes and underlie motivation to learn, solve problems and seek experience.
Skills direct behavior toward the activity of meaning making.	Meaning making = The act of applying one's skills to the organization of information, experience, and behavior; the use, adaptation, or creation of knowledge by the individual toward learning and problem solving.	Examples of the act of meaning making include exploring; experiencing; problem seeking, finding, and solving; "contenting" and "knowledging" (building content and knowledge about experience); willing; expressing; imaging; ikonicising; and creating.
	Knowledge = Organized bodies of information and conceptual relationships created by the culture and the individual through shared and individual experiences.	
	Problem Solving = Skilled behavior directed toward the attainment of goals established by needs.	
	Learning = The act of meaning making or forming organized bodies of information from experiences. Also the act of forming strategies or skills by which to deal with information and experience.	

Logical Assumptions	Definitions	Examples
It is imperative to conduct process education designed for the facilitation and development of skills.	Process Education = Activity designed to begin with the experience and meanings already accrued to the learner for the purpose of stimulating him to actively extend, modify and reorganize his experience, meanings and skills for dealing with these.	Education for skills has frequently been ignored. Education for skills is justified in terms of what is known about significant learning and the realities of the present world. Developing skills and the capability for skilled behavior results in individuals both more motivated and competent in the structuring of experience or meaning making. A formal educational setting can provide numerous opportunities to increase the normal range of experience encountered by the individual. It can, therefore, provide the setting where he can acquire, test, and modify a wide array of skills and response patterns essential to effective living.

ACTIVITY III (Group)

Using the materials in Handout 4 think about the value positions of process education relative to each of the following topics. Working individually write in statements in the blanks provided. After you have completed your chart share your statements with the others in your group. Discuss the results of your activity.

According to the basic assumptions, justifications, and definitions provided process education says:

Knowledge
- is _____
- is not _____

Learning
- is _____
- is not _____

The learner
- is _____
- is not _____

The school
- should _____
- should not _____

After you have finished check your efforts against Handout 5. The value positions presented on Handout 5 were derived from the study of many sets of process and conventional instructional materials along with supporting documents and statements regarding their underlying philosophy and methodology.[2]

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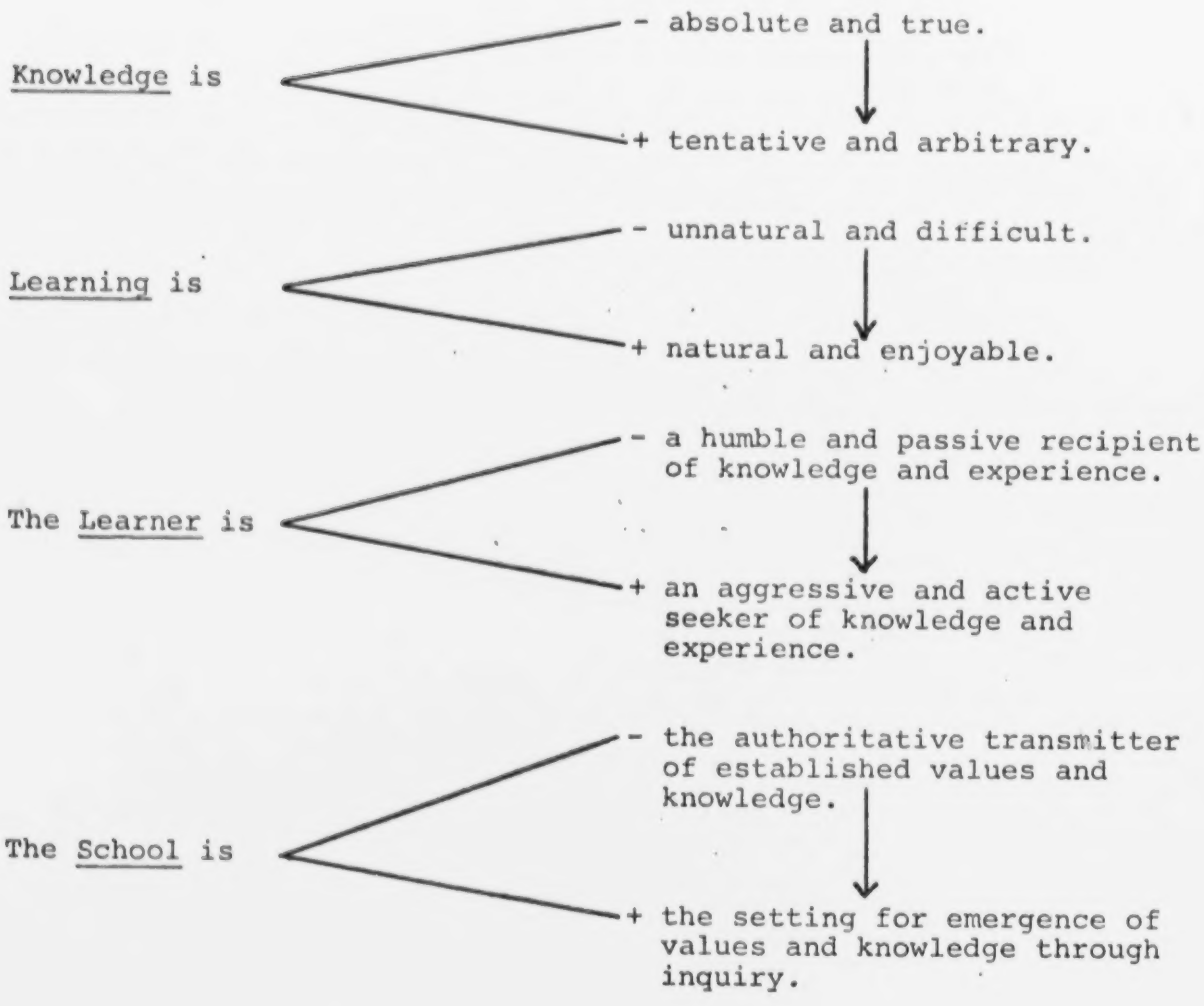
[2]For additional information about the process curricula studied see Seferian A, and Cole, H.P. Encounters in Thinking: A Compendium of Process Curricula. 1300 Elmwood Avenue, Buffalo, New York: Creative Education Foundation, 1970.

HANDOUT 5

OPPOSED VALUE POSITIONS UNDERLYING PROCESS AND CONVENTIONAL EDUCATIONAL PRACTICE


Knowledge is
- absolute and true.
+ tentative and arbitrary.
Learning is
- unnatural and difficult.
+ natural and enjoyable.
The Learner is
- a humble and passive recipient of knowledge and experience.
+ an aggressive and active seeker of knowledge and experience.
The School is
- the authoritative transmitter of established values and knowledge.
+ the setting for emergence of values and knowledge through inquiry.

The value positions consistent with process education are indicated by a plus (+) sign. The opposed and prevailing value for more conventional educational practice is indicated by a minus (-) sign. The desired direction of change needed to achieve process education in practice is indicated by an arrow.

HANDOUT 6

RELATIONSHIP BETWEEN BASIC VALUE POSITIONS AND OPERATIONAL CLASSROOM ROLES

Values may be defined as either the ideals that people hold or the customs they practice. What people actually do (their customs) are often better indicators of their values than what they say are their ideals.

The values of a culture tend to define the roles expected of individuals in institutions in that culture. In education there are at least two different sets of values concerning the nature of knowledge, the learner, learning, and the purpose of schooling. Process educators and traditional educators have different sets of ideals in these four areas. Not only are their values in conflict, but each set of values gives rise to quite different role expectations for pupils and teachers. It is this property which make the basic value positions represented in Handout 5 useful. One can derive classroom roles for teachers and pupils appropriate or inappropriate to the practice of process education. Armed with descriptions of roles supportive of and opposed to process education, it is possible to: 1) analyze classroom learning activities; instructional procedures toward determining how well they are suited to achieving the ideals of process education, 2) modify existing materials, procedures, and activities to better achieve the ideals of process education, 3) design new instructional procedures and materials to achieve the goals of process education.

ACTIVITY IV (Group)

Using information from Handouts 5 and 6 list major teacher and pupil classroom learning-teaching roles appropriate and inappropriate to the practice of process education.

Values About	Appropriate Teacher Roles	Inappropriate Teacher Roles
Knowledge		

Values About	Appropriate Teacher Roles	Inappropriate Teacher Roles
Learning and the Learner		
Purpose of School		

Values About	Appropriate Pupil Roles	Inappropriate Pupil Roles
Knowledge		
Learning and the Learner		
Purpose of School		

After you have finished your listings compare your results with Handout 7.

HANDOUT 7

REPRESENTATIVE CLASSROOM ROLES APPROPRIATE AND INAPPROPRIATE TO PROCESS EDUCATION

Values About	Appropriate Teacher Roles	Inappropriate Teacher Roles
Knowledge	Operates in a dialectial manner in presenting knowledge. Is open to new ideas and procedures. Uses pupil knowledge and competence in teaching. Presents multiple views and expects students to form their own preferred meanings. Rewards creative, divergent behavior of pupils.	Adopts a didactic and dogmatic approach to knowledge. Inhibits or punishes student observations, values, or conclusions different from his own, the textbook or other authority. Strives to have all pupils master the wisdom he prescribes for them.
Learning and the Learner	Views learning as an exciting and self-rewarding activity. Holds that learning how to inquire and problem solve is the primary goal of education. Recognizes that children have a natural inclination to learn; that they are curious, imaginative, and skilled at creating knowledge from experience. Provides pupils with a rich and varied array of topics, materials, and activities in his content area to stimulate further learning.	Views learning as unpleasant but necessary. Holds the memorization of information and mastry of conventional content to be the primary goal of education. Recognizes that children have to be forced to study and learn. Applies extrinsic rewards and punishments to force the pupil to learn prescribed content which is carefully laid out and precisely defined.
The Purpose of Schooling	Views schools as being child centered with his major responsibility for fostering the "will to learn". The teacher has power, competence and commitment in designing an environment rich in ideas, topics, and materials to stimulate and guide independent learning. Provides opportunity for students to identify their own learning goals, patterns, and routes within the broad outlines of institutional curricula. Expects pupils to be directly involved in the establishment and maintenance of practices which govern learning activity in the classroom and school.	Views school as being institutionally centered with his major responsibility to implement the policies and procedures of the principal, superintendent, or state department. The teacher has little power, competence or interest in major decisions about instructional procedures, programs, or materials. Rather he oversees the learning of students in the prescribed course of study. He does not encourage or allow pupils to question or become involved in establishing general school practices which govern learning activity in the classroom and school.

Values About	Appropriate Pupil Roles	Inappropriate Pupil Roles
Knowledge	Questions the values, assumptions, observations, and conclusions of authoritative sources of knowledge. Recognizes the utility of knowledge in solving problems. Selects and modifies the multiple ideas presented by teachers and authors to formulate his own meanings consistent with his experience and needs.	Does not question even obvious points of confusion in the values, assumptions, logic, and observations of the teacher or other authoritative sources of knowledge. Rather he credits such confusion to his own intellectual inadequacy. He rejects his own experience and feelings in favor of converging on the ideas of authorative sources, i.e. teachers, textbooks, experts.
Learning and the Learner	Pursues facts and information with zest about topics and problems he encounters. Organizes the information he obtains from teachers, other pupils, his own experience and other sources into inferences and hypothesis he can subsequently test and match to future experience. Enjoys learning and derives his primary pleasure from the learning activity itself.	Does not enjoy learning and views it as a difficult chore. Accepts the need to be forced to attend, "behave", and study. Derives his primary pleasure not from learning activity itself but from the rewards given by teachers. Rejects the leadership of other pupils in learning, seeking instead the teacher's direction.
The Purpose of Schooling	Is an active co-learner with the teacher. Selects many of his own problems, topics, and patterns of inquiry. Exhibits leadership and teaching in his areas of competence and interest. Seeks and accepts direction from the teacher and other pupils in areas where they are more competent than he.	Passively carries out the activites prescribed by the teacher or school. Exhibits mediocre task commitment and performance. Has and seeks no major responsibility in planning the content, topics, or patterns of his learning activities. Does not attempt to teach other pupils or accept instruction from other pupils in the classroom.

HANDOUT 8

TRANSLATING ROLE DESCRIPTIONS INTO BEHAVIORAL INDICIES

The pupil and teacher role descriptions derived from the basic value positions for process education are general descriptions of prevaling classroom normative expectations for pupil and teacher behavior. Each of these general descriptions can be broken down into a number of specific behavioral indicators useful in assessing the degree to which the appropriate or inappropriate roles are occuring in the classroom. For example if we take the general role description for the pupil, "Questions the values, assumptions, observations, and conclusions of authoritative sources of knowledge" we can generate a number of behavioral indicies for this and the opposing pupil role "Does not question even obvious points of confusion in the values, assumptions, logic, and observations of authoritative knowledge sources". Examples of some behavioral indicies we might use to determine which role pupils in a classroom were adopting are listed below.

1. When the teacher makes an apparent error in reasoning or observation the pupil:
   ___ (+) calls attention to the error
   ___ (-) ignores the error

2. When the text or teacher says something which conflicts with earlier experience or other knowledge the pupil:
   ___ (+) questions the teacher or other source
   ___ (-) ignores the inconsistency

3. When the teacher or textbook shows the student a particular method of performing an activity or solving a problem, and the pupil knows or intuits another method he:
   ___ (+) uses his own method, defends and explains it
   ___ (-) rejects his own method in favor of the prescribed method.

4. When studying a given topic, according to some authority, the student is:
   ___ (+) sensitive to and accepting of different viewpoints of others (peers, parents, other authors etc.)
   ___ (-) insensitive to and rejecting of the different viewpoints presented by others.

Each of these indicators could be used to tell an observer something about the role the student adopts and whether or not it is supportive of process education ideals.

ACTIVITY V (Group)

Using the basic value positions supportive of and opposed to process education provided in Handout 5, the appropriate and inappropriate roles you generated in Activity IV, as well as the representative roles provided in Handout 7, make a list of specific behavioral indicies you could use to observe classroom behavior. Make some indicies for both pupils and teachers. Try to prepare at least 2 each for several different value/role areas. Examine the previous materials and discuss what indicies you might use. Jot down a few notes about the indicies you might be able to use.

Notes:

(Make your notes on the back of this paper)

HANDOUT 9

ACTIVITY VI (Group)

CHILDREN AT WORK IN A PROCESS CURRICULUM

In recent years the Flanders interaction analysis system has been widely used. The Flanders and many related systems focus nearly exclusively on verbal interaction between teacher and student. In a properly functioning process education-oriented classroom the Flanders interaction analysis system frequently would be unable to provide useful information. You will now see a few color slides showing some important process education roles exhibited by pupils and teachers using an excellent process curriculum package. As you watch these slides be alert to indicies other than verbal interaction between teacher and pupil you might use to assess the degree to which process roles were occuring in a classroom. Do not try to analyze the activity. Rather attend to what types of interactions and activities are occuring in order to develop ideas about additional behavioral indicies which you might use to describe process roles.

After you have finished viewing the slides develop a few behavioral indicators which can be used to analyze classroom behavior patterns. Use the bottom and rear of this paper.

HANDOUT 10

ACTIVITY VII (Group)

REPRESENTATIVE ROLE INDICIES

A number pupil and teacher role indicies are provided below. Each of these is related to one or more of the basic value positions for process education and the derivative role expectations. Using these and similar indicators it is possible over a period of time to assess the degree to which the teacher and pupils in a given classroom are exhibiting behavior consistent with the goals of process education.

After you have examined these role indicators and compared them with your earlier notes and indicators produced in Activities V and VI (see Handouts 8 and 9) further modify your indicators as you see fit in preparation for analysis of simulated classroom learning activities to be presented in a few minutes.

Pupil Role Indicies

1. At any given instant different pupils are at work on:
   ___ (+) different tasks and/or activities according to individual need and interest
   ___ (-) identical tasks and/or activities according to teacher preference

2. For any given task required of all pupils, different pupils:
   ___ (+) use varied techniques, methods and/or procedures
   ___ (-) use one standardized, prescribed set of techniques, methods, or procedures

3. Student's interact with one another and learning materials:
   ___ (+) spontaneously and naturally as if they were engaged in task-oriented play
   ___ (-) only as monitored directly through the teacher (as in a typical teacher dominated question and answer session).

4. Student interest and persistance at a given task and/or activity:
   ___ (+) is maintained at a high level over an extended period of time without teacher supervision
   ___ (-) is <u>not</u> maintained at a high level in the absence of teacher supervision

5. Conclusions, observations, and ideas reached by students following a given learning activity, topic, and/or task:
   ___ (+) are varied, divergent and often in conflict with one another
   ___ (-) are convergent, uniform and usually in agreement with one another

6. When asked to explain or justify a particular conclusion, idea, observation, method <u>etc</u>. students:
   ___ (+) defend their position on the basis of first hand experience, empirical observation, and perceptions of others.
   ___ (-) defend their position by appeal to the authority of a text, teacher, parent etc. (It's right because the teacher says so!)

Teacher Role Indicies

1. Routinely during learning activities, tasks, and/or topics the teacher:
   ___ (+) plays a facilitative role acting as stimulus and knowledge resource to pupils as they work largely independently and in small groups
   ___ (-) plays a direct managing role holding all pupils' attention, eliciting, directing, and monitoring their overt behavior.

2. Routinely manages his classroom such that all pupils are:
   ___ (+) engaged in a variety of learning activities, and/or tasks at different times and different levels of proficiency and interest
   ___ (-) engaged in identical learning activities and/or tasks at a given time toward achieving minimal levels of mastry of specified content in unison.

3. When dealing with content, topics, or learning activities for which there are a diversity of opinions, interpretations, facts, assumptions or conventions (i.e. other than denotatively agreed upon knowledge such as correct spelling, computation or alphabetic sequence) the teacher:
   ___ (+) dialectically presents multiple views, points out advantages and limitations to each, and encourages students to form their own preferred meanings and divergent interpretations
   ___ (-) didacticly presents a particular cluster of views or interpetations, ignores their limitations and conflicts with other views and punishes or inhibits divergent ideas in his students.

4. The teacher physically arranges the classroom, learning activities, procedures, and materials to:
   ___ (+) maximize direct pupil experience and interaction with peers and learning materials in task oriented and/or exploratory activity while minimizing the need for his direct control and monitoring of student activity
   ___ (-) maximize his direct and continuous control over student activity and minimizes student-student, student-material activity not strictly prescribed and monitored by him.

5. In planning of instruction and/or assessing of learning the teacher routinely devotes his primary attention to:
   ___ (+) specifying and measuring the process skills and variables related to "learning how to learn" eg. analytic thinking skills, ideational fluency and flexibility, use of information sources and systems, planning to achieve goals, evaluating worth and validity of information etc.
   ___ (-) specifying and measuring facts, information, and specific concepts central to a given discipline eg. date of the Monroe doctrine, size of the planets, order of geological periods, styles of Elizabethan poets, name of the 23d president etc.

6. In talking with students the teacher routinely:
   ___ (+) raises provocative questions for students to ponder and expects multiple and divergent responses
   ___ (-) asks questions expecting specific convergent responses from students yielding up the teachers predetermined answer.

HANDOUT 11

ACTIVITY VIII (Individual and Group)

APPLICATION OF PUPIL-TEACHER ROLE INDICIES TO CLASSROOM ANALYSIS

Now that you have had an opportunity to examine the representative role indicies provided on this Handout and to incorporate them with the ideas about indicies you had generated earlier, you will be asked to apply them to the analysis of three simulations of classroom teaching-learning activity.

First, the slides you saw earlier will be repeated.This time you are to do an analysis of the roles according to your indicators or the ones provided on Handout 10. Do your analysis individually. Following your analysis of the slides compare notes with the members in your group.

This procedure will be repeated for two more simulations which will be role played with some of you acting as students, and others as observers.

Before proceeding quickly review your role indicies, select those you will use to observe the simulated classroom activity. You may wish to list them briefly on the bottom and rear of this page.

HANDOUT 12

GENERALIZING EXPERIENCES

You have learned much about the basic assumptions, justifications, and values of process education concerning the nature of knowledge, learning, the learner, and the purpose of schooling. In addition you have learned something about the way the basic value positions for process education can be translated first into general classroom role descriptions for pupils and teachers, and later translated into specific behavioral indicies. You have learned how to generate such roles and indicies from a set of stated values. You have also learned how to apply the indicies to assess observed instruction relative to its agreement or disagreement with the ideals of process education. However, such role descriptions and indicies have another utility. Quite simply they may be used as objectives or criteria to guide the selection of instructional materials, strategies and procedures[3]. They can be postulated as objectives toward which you plan your teaching activity and used as evaluative criteria to determine how well you have implemented your ideals.

ACTIVITY IX

With the other members in your group complete one or more of the following activities. Using the basic value positions, the derivative role descriptions and indicies as objectives, explain how the lesson described could be improved.

A. An elementary school teacher decides it is time to have the children build Haloween decorations. She lays out 30 sheets of orange and black construction paper, scissors, glue, and a completed Jack-o-lantern, black cat and witch. She directs the students in how to use the completed figures as templates to draw similar figures. She shows the children how to arrange the parts for each figure and how to fasten them together. She has all the students working in isolation but on the same phase of the activity, to insure that all children finish their 3 decorations at approximately the same time. She then collects the decorations and hangs them in even rows at the front of the room.

   Question: 1. What have the children been learning in this situation?

   2. What are the implied value positions about knowledge, learning, the learner, and the purpose of schooling?

   3. How could this lesson be redesigned to be highly supportive of ideals and practice of process education?

B. Think of some lesson or learning activity you have actually taught yourself or seen taught which was highly inappropriate to the values and teaching-learning roles basic to process education. Describe or role play the lesson. List the classroom roles the lesson strengthened. Use as objectives specific role descriptions and behavioral indicies derived from the values for process education. Redesign the lesson or learning activity to make it highly compatible with these new objectives.

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[3]For instructions on how to select curricular and instructional materials appropriate to process education refer to Cole, Henry P. Process Education: The New Direction For Elementary-Secondary Schools. Englewood Cliffs, New Jersey: Educational Technology Publications, 1972.

HANDOUT 13

A QUESTION TO TAKE WITH YOU:
DO YOU BELIEVE WHAT YOU DO?

The procedures involved in deriving general teaching-learning role descriptions from stated ideals or values, and further deriving behavioral role indicies from these which may in turn be used either as objectives, criteria, or assessment devicies are generalizable. You may not hold the values stated here for process education, or you may hold a set of quite different values or ideals for your teaching activity. However, you probably want to better implement your ideals, whatever they are. To do this you must first ask yourself what you believe and what you do not believe about teaching, knowledge, schooling, learning, the learner and related matters. Once you have determined what your ideals are it is possible for you to logically determine the types of classroom learning-teaching roles you and your students should adopt to achieve those ideals. You can use the role descriptions you derive and their derivative, more specific behavioral indicies: 1) as evaluation procedures to assess the behavior of yourself and your students to see if what you do supports what you value, 2) as objectives or goals toward which you select materials, plan and modify your practices to come closer to achieving your ideals.

In short if you know what you value in your teaching-learning activity you can define the roles for yourself and your students supportive of those ideals and operationally move toward them. Not to ask yourself such questions; not to begin with the basic issues of what you believe is dangerous. You are apt to end up doing what you do not believe, going where you do not want to go, and ultimately not knowing or caring that you have been subverted from your once cherished beliefs which become merely empty slogans. According to much research, such is the fate of may teachers (Walberg 1970).

HANDOUT 14

FEEDBACK SHEET

Please fill out the questions below and leave this form with the workshop leader before you depart.

1. Please briefly state your job description and title.

2. How close to your expectations for this workshop have the day's activities been? (Rank according to scale by circling one number)

   very close 1 2 3 4 5 not close at all

3. What is the likelihood of your implementing some of the procedures described to improve your own teaching behavior?

   very likely 1 2 3 4 5 unlikely

4. What is the likelihood of your using some or all of these materials to train other groups?

   very likely 1 2 3 4 5 unlikely

5. How do you feel about the value positions presented for process education?

   strongly agree 1 2 3 4 5 strongly disagree

6. How would you evaluate the conduct of the workshop and workshop leader relative to agreement with the ideals of process education?

   Highly appropriate 1 2 3 4 5 highly inappropriate

7. Generally speaking, how do you feel about the entire workshop experience?

8. Please comment on the presentation and make suggestions for its modification and improvement.

APPENDIX

This appendix contains the following materials:

1. Alternate materials to use in place of the film "Windows", Handout 2, Activity I.

2. Suggestions for alternate simulations for Handout 9, Activity VI, and Handout 10, Activity VII.

3. Description of role playing simulations used in Handout 11, Activities VIII.

4. Annotated Bibliography of related materials.

1. Alternate Materials to use in Place of the Film "Windows" in Handout 2, Activity I

The Film "Windows" is not yet commercially available. Therefore you might substitute the following imaginative activities.

PROJECT/EXTEND

Imagine and describe the changes which would be likely to occur in thinking, feeling, acting, and all aspects of society and living if and when:

--communication occurs between man and other terrestrial species (whales, dolphins)
--contact is established with extra terrestrial life forms
--ESP becomes subject to learning
--life spans increase to 200 years
--aging process can be inhibited
--computer technology makes possible self programming, self correction, independent learning by machines
--antigravity matter is discovered
--research develops communication with spirits of the dead
--women can purchase and self inseminate sperm carrying specified traits
--learning can be induced through direct chemical input to brain cells
--eighty percent of the humans on earth are destroyed in a 12 hour nuclear war
--travel forward and backward in time becomes possible
--weekly hour long medical treatments can be used to replace normal daily sleep
--equipment is developed which allows men to instantly destroy life and property by thought or will
--genetic manipulation leads to the elimination of all hostile characteristics in man.

DOING

Ask each person in your group to list ten or more objects, customs, products, values, or "things" least likely to change in the next few years.

Examples

Beer
Traffic Lights
Doors
Marriage
Learning
Funerals
Conception/Pregnancy/Birth
Sleep
Pencils
Christmas
Death
Buying/Selling/Money

Have each person select from his list the 3 things he thinks least likely to change.

Ask him to find out who agrees/disagrees with him.

Select those things least likely to change and have your group speculate/brainstorm how they could/might change.

Is there anything which can't be changed?

For the unconvinced:

Think of some product, service, institution, custom or thing which does not/has not/will not change. Make a list. Is it long or short?

2. Suggestions For Alternate Sumulations For Handout 9, Activity VI, And Handout 10, Activity VII

The slides used to simulate classroom activity in this section are photographs of children using the Materials and Activities for Teachers and Children (MATCH) Unit, the House of Ancient Greece. This is an excellent process curriculum proven to have a positive effect in moving classroom learning roles in the direction of process education values. The Unit is available from American Science and Engineering, 20 Overland Street, Boston, Massachusetts, 02215.

In the event you do not have access to a MATCH Unit, you might want to role play a similar excellent inquiry lesson as a simulation. You can find numerous appropriate lessons and activities in the instructional materials associated with many innovative science, social studies and mathematics materials (see Encounters in Thinking referenced in the bibliography for a listing of appropriate materials).

3. Descriptions of Role Playing Simulations for Handout 11, Activities VIII

The two role playing simulations in this section are both based on an excellent inquiry lesson developed by Jerome Bruner and his associates as part of the Man: A Course of Study (MACOS) social studies curriculum. The MACOS materials were developed at Education Development Center in Boston, Massachusetts, and are commercially available from Curriculum Development Associates, 1200 Connecticut Avenue, Washington, D.C. MACOS, a one year upper elementary social studies curriculum, has been proven to be a highly effective process education curriculum vehicle.

The two lessons role played represent first, a lesson actually observed by the author taught by a teacher who rejected the values of process education for traditional educational practices; and second, the lesson taught as it was intended to be and would be performed by a committed and competent teacher. For convenience the general purpose of the lesson and materials required are described first. The improper lesson procedure is next described. The proper lesson procedure is then described.

Proper and Improper Lesson Procedure

General Information and Materials

This is a MACOS inquiry lesson concerned with the concept of "tools". For purposes of the lesson a tool is defined as "anything which mdofies some social or physical aspect of our environment". To carry out the lesson you will need a collection of common objects such as:

a string	piece of wire	postage stamp
a comb	paper clip	pencil
a candle	glove	rubber band
belt	staple	map
metal can	paper cup	toothbrush
lipstick tube	hair pin	coin

Improper Lesson Procedure

1. Seat the pupils in standard fashion in rows facing all in the same direction.

2. Allow no talking or interaction among students.

3. Read the definition of a tool provided above and require students to write the definition in their notebooks.

4. Have in mind a particular function or answer for each object, i.e. a paper clip keeps our papers in order, a glove with leather on the palm helps us grip the steering wheel of a car, etc.

5. Layout the objects on a desk. Hold up each object one at a time and call on students asking them to tell how the object modified some aspect of the social or physical environment. Unless they give the answer you had previously selected, say wrong! When they give a correct answer repeat it.

6. Allow no nonsense or sillyness.

Proper Lesson Procedure

1. Have the students gather around you or be seated in a small circle.

2. Tell them the lesson concerns what a tool is.

3. Ask them if they can define what a tool is, i.e. in a general way. Accept and write down the definitions offered.

4. After a few minutes, say, "One definition for a tool is anything which modifies some aspect of our social or physical environment". Write this defintion on the board. Relate it to student defintions.

5. Say, "I have some things in a bag I want you to look at. I want you to think about whether or not they are tools and explain how they do or could modify aspects of your social or physical environment".

6. Allow everyone to reach into the shopping bag and select 2 or 3 objects. Say; "OK, now find one or two other people and talk with them about your objects and whether or not they are tools".

7. After the small groups have examined each others objects ask each group to explain to the entire group the name of the object and how it modifies the social or physical environment. Record the object names and statements on the board.

8. Have the students put the objects back into the bag and draw out one or two different objects. Repeat the small group procedure above. Only this time, explain that each person should think of an unusual or different way in which an object might be a tool - eg. different from its usual use. Again after individual small groups of students have completed observations and discussions, call for comment from each subgroup to the total group.

9. Ask each person to look in his pockets or purse to see if he can find 2 or or 3 objects which serve as tools. Ask him to explain how the objects modify some aspect of his social or physical environment, or how they could do so if he wished.

10. Vary or modify the above procedures as you wish striving to keep the students interested, alert, imaginative and inquiring.

4. Annotated Bibliography

Cole, H.P. Process Curricula and Creativity Development, Journal of Creative Behavior, 1969, 3 (4) : 243 - 259. This article describes the basic characteristics of process education, its empirical and logical bases, and the relationships between process education practices and facilitation of creativity.

Cole, H.P. Exemplary Curricula As Vehicles For Facilitating Creativity, Journal of Research and Development in Education. 4 (3) : 23 - 28, 1971. This article describes how existing curricula and instructional materials can be selected for their utility in promoting the practice of process education in actual classroom behavior.

Cole, H.P. Process Education:The New Direction for Elementary-Secondary Schools. Englewood Cliffs, New Jersey: Educational Technology Publications, 1972. This is a book which provides detailed information concerning the definition, values, logical, empirical, and practical bases for implementing process education into wide scale practice.

Fox, R., Luszk, M.B., & Schmuck, R. Diagnosing Classroom Learning Environments. Chicago: SRA, 1966. This short and excellent book provides specific techniques to aid teachers and pupils in implementing classroom roles appropriate to process education.

Schmuck, R.A., Chesler, M. & Lippitt, R. Problem Solving To Improve Classroom Learning. Chicago: SRA, 1966. This book is related to the one above. It contains specific techniques to develop consistent and effective inquiry modes of learning among students and teachers.

Seferian, A. & Cole, H.P. Encounters in Thinking: A Compendium of Curricula for Process Education. Buffalo, New York, 1300 Elmwood Avenue: Creative Education Foundation, 1970. This is a booklet listing and describing a large number of existing elementary school instructional materials capable of promoting process education. The materials were identified in a nation wide search.

Vincent, W.S. Signs of Good Teaching. New York: Columbia University, 1969. This book describes the classroom observation analysis system Indicators of Quality. This system is highly appropriate to the analysis of process education learning environments and pupil-teacher classroom roles.

Walberg, H.J. Prefessional Role Discontinuities in Educational Careers. Review of Educational Research, 1970, 40 (3): 409 - 420. In this article Professor Walberg reviews a number of studies which indicate that teachers tend to come to do what they do not believe and thus undergo a personality-role conflict. It appears that many beginning teachers may be socialized toward the traditional values and practices despite their ideals.